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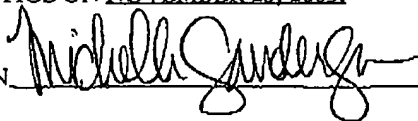
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Examiner Wenpeng Chen	Brian F. Russell, Reg. No. 40,796	
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN RE APPLICATION OF:

DWIGHT ROSS PALMER ET AL.

SERIAL NO.: 10/039,973

FILED: **OCTOBER 25, 2001**FOR: **AUTOMATIC METHOD OF
IDENTIFYING IMAGE
SUBREGIONS FOR REUSE
DURING DATASTREAM
TRANSMISSION**

§ ATTY. DOCKET NO.: BLD920010004US1

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§ EXAMINER: **WENPENG CHEN**

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§ ART UNIT: 2624

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AMENDED APPEAL BRIEF UNDER 37 C.F.R. §1.192Mail Stop Appeal Briefs - Patents
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Sir:

This Amended Appeal Brief is submitted in support of the Appeal of the Examiner's final rejection of Claims 1-24 in the above-identified application and in response to the Examiner's Notification of Non-Compliant Appeal Brief, sent on 26 October, 2005. In this Amended Appeal Brief, Applicants have provided a concise explanation of each appealed independent claim, removed the erroneous references to Claim 13, and placed the argument of Claim 2 under a separate subheading. No fee is believed to be required. However, in the event that payment of a fee is required, please charge that fee and any other required fees to **IBM CORPORATION'S Deposit Account No. 50-3669**.

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REAL PARTY IN INTEREST

The real party in interest in the present Application is International Business Machines Corporation, the Assignee of the present application as evidenced by the Assignment set forth at reel 012460, frame 0357.

RELATED APPEALS AND INTERFERENCES

There are no Appeals or Interferences known to Appellant, the Appellant's legal representative, or assignee, which would be directly affected or have a bearing on the Board's decision in the present Appeal.

STATUS OF CLAIMS

Claims 1-24, which comprise all pending claims, stand finally rejected by the Examiner as noted in the Final Action dated May 20, 2005. No claims have been entered or canceled during prosecution. The rejections of Claims 1-24 are appealed.

STATUS OF AMENDMENTS

No amendments to the claims have been proposed or entered subsequent to the Final Action that led to this appeal.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The invention recited in exemplary Claim 1 provides a method for reducing datastream transmission bandwidth requirements. As is described, *inter alia*, at page 15, line 13 *et seq.* and illustrated at Figure 4, reference number 406, in response to determining that an image data structure is present in a datastream, the image data structure is extracted from the datastream. As is described, *inter alia*, at page 15, line 15 *et seq.* and illustrated at Figure 4, reference number 408, the image data structure is divided into one or more subregions. As is described, *inter alia*, at page 17, line 7 *et seq.* and illustrated at Figure 4, reference number 420, a corresponding

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identifier is associated with a first selected one of the one or more subregions and, in response to determining that the first selected one of the one or more subregions is substantially identical to a second selected one of the one or more subregions, the second selected one of the one or more subregions is replaced with the corresponding identifier of the first selected one of the one or more subregions. As is described, *inter alia*, at page 15, line 18 *et seq.* and illustrated at **Figure 4**, reference number 412, the transmission bandwidth requirements are then reduced by generating a packaged image, which includes a decoding table comprising the first selected one of the one or more subregions and the corresponding identifier of the first selected one of the one or more subregions in place of the second selected one of the one or more subregions. As is described, *inter alia*, at page 15, line 6 *et seq.* and illustrated at **Figure 4**, reference number 405, the packaged image is inserted into the data stream and transmitted.

The invention recited in exemplary Claim 2 provides a method for decoding a packaged image. As is described, *inter alia*, at page 18, line 7 *et seq.* and illustrated at **Figure 5**, reference number 504, whether a packaged image is present in a datastream is determined. As is described, *inter alia*, at page 18, line 15 *et seq.* and illustrated at **Figure 5**, reference number 506, responsive to determining that a packaged image is present in a datastream, the packaged image is extracted. As is described, *inter alia*, at page 18, line 17 *et seq.* and illustrated at **Figure 5**, reference number 508, the packaged image is separated into an image data structure and a decoding table containing one or more references and one or more corresponding identifiers. As is described, *inter alia*, at page 19, line 18 *et seq.* and illustrated at **Figure 5**, reference number 512, the image data structure is modified to replace any identifiers present in the image data structure with corresponding references.

The invention recited in exemplary Claim 8 provides a method of reducing datastream transmission bandwidth. As is described, *inter alia*, at page 15, line 3 *et seq.* and illustrated at **Figure 4**, reference number 402, a datastream is examined for the presence of one or more image data items. As is described, *inter alia*, at page 16, line 8 *et seq.* and illustrated at **Figure 4**, reference number 416, responsive to the presence of one or more image data items, the one or more image data items are examined for the presence of one or more repeated visual data elements. As is described, *inter alia*, at page 15, line 18 *et seq.* and illustrated at **Figure 4**, reference number 412, responsive to the presence of one or more repeated visual data elements, the datastream is recoded with one or more replacement markers inserted to replace the one or

more repeated visual data elements and with a decoding table for translating the one or more replacement markers during decoding.

Similarly, the invention recited in Claim 9 provides an apparatus for reducing datastream transmission bandwidth requirements. As is described, *inter alia*, at page 20, line 17 *et seq.* and illustrated at Figure 6, reference number 602, a means for determining that an image data structure is present in a datastream is provided. As is described, *inter alia*, at page 7, line 13 *et seq.* and illustrated at Figure 1, reference number 130, a means for extracting the image data structure from the datastream is provided. As is described, *inter alia*, at page 20, line 26 *et seq.* and illustrated at Figure 6, reference number 606, a means for dividing the image data structure into one or more subregions is provided and a means for associating a corresponding identifier with a first selected one of the one or more subregions is provided. As is described, *inter alia*, at page 21, line 1 *et seq.* and illustrated at Figure 6, reference number 610, a means, in response to determining that the first selected one of the one or more subregions is substantially identical to a second selected one of the one or more subregions, replacing the second selected one of the one or more subregions with the corresponding identifier of the first selected one of the one or more subregions. As is described, *inter alia*, at page 21, line 9 *et seq.* and illustrated at Figure 6, reference number 616, a means for reducing transmission bandwidth requirements by generating a packaged image, which includes a decoding table comprising the first selected one of the one or more subregions and the corresponding identifier of the first selected one of the one or more subregions in place of the second selected one of the one or more subregions is provided. As is described, *inter alia*, at page 21, line 12 *et seq.* and illustrated at Figure 6, reference number 622, means for inserting the packaged image into the data stream is provided and means for transmitting the modified data is provided.

The invention recited in Claim 10 provides an apparatus for decoding a packaged image. As is described, *inter alia*, at page 21, line 26 *et seq.* and illustrated at Figure 6, reference number 628, means for determining whether a packaged image is present in a datastream is provided and means for, responsive to determining that a packaged image is present in a datastream, extracting the packaged image is provided. As is described, *inter alia*, at page 21, line 26 *et seq.* and illustrated at Figure 6, reference number 628, means for separating the packaged image into an image data structure and a decoding table containing one or more references and one or more corresponding identifiers is provided. As is described, *inter alia*, at

page 22, line 9 *et seq.* and illustrated at Figure 6, reference number 634, means for modifying the image data structure to replace any identifiers present in the image data structure with corresponding references is provided.

The invention recited in Claim 16 provides an apparatus for reducing datastream transmission bandwidth. As is described, *inter alia*, at page 20, line 22 *et seq.* and illustrated at Figure 6, reference number 602, means for examining a datastream for the presence of one or more image data items is provided. As is described, *inter alia*, at page 20, line 22 *et seq.* and illustrated at Figure 6, reference number 606, a means for, responsive to the presence of one or more image data items, examining the one or more image data items for the presence of one or more repeated visual data elements is provided. As is described, *inter alia*, at page 21, line 11 *et seq.* and illustrated at Figure 6, reference number 616, means for, responsive to the presence of one or more repeated visual data elements, recoding the datastream with one or more replacement markers inserted to replace the one or more repeated visual data elements and with a decoding table for translating the one or more replacement markers during decoding is provided.

The invention recited in Claim 17 provides a computer program product in a computer usable medium for reducing datastream transmission bandwidth requirements. As is described, *inter alia*, at page 7, line 3 *et seq.* and illustrated at Figure 1, reference number 114 a computer usable medium is provided. As is described, *inter alia*, at page 15, line 12 *et seq.* and illustrated at Figure 4, reference number 404, instructions are provided on the computer usable medium for determining that an image data structure is present in a datastream. As is described, *inter alia*, at page 15, line 13 *et seq.* and illustrated at Figure 4, reference number 406, instructions are provided on the computer usable medium for extracting the image data structure from the datastream. As is described, *inter alia*, at page 15, line 15 *et seq.* and illustrated at Figure 4, reference number 408 instructions are provided on the computer usable medium for dividing the image data structure into one or more subregions. As is described, *inter alia*, at page 17, line 7 *et seq.* and illustrated at Figure 4, reference number 420, instructions are provided on the computer usable medium for associating a corresponding identifier with a first selected one of the one or more subregions. As is described, *inter alia*, at page 15, line 6 *et seq.* and illustrated at Figure 4, reference number 405 instructions are provided on the computer usable medium for, in response to determining that the first selected one of the one or more subregions is substantially identical to a second selected one of the one or more subregions, replacing the second selected one of the

one or more subregions with the corresponding identifier of the first selected one of the one or more subregions. As is described, *inter alia*, at page 15, line 8 *et seq.* and illustrated at **Figure 4**, reference number 412 instructions are provided on the computer usable medium for reducing transmission bandwidth requirements by generating a packaged image, which includes a decoding table comprising said first selected one of said one or more subregions and said corresponding identifier of said first selected one of said one or more subregions in place of said second selected one of said one or more subregions. As is described, *inter alia*, at page 15, line 6 *et seq.* and illustrated at **Figure 4**, reference number 405 instructions are provided on the computer readable medium for inserting the packaged image into the data stream.

The invention recited in Claim 18 provides a computer program product in a computer usable medium for decoding a packaged image. As is described, *inter alia*, at page 9, line 15 *et seq.* and illustrated at **Figure 1**, reference number 150 a computer usable medium is provided. As is described, *inter alia*, at page 18, line 7 *et seq.* and illustrated at **Figure 5**, reference number 504 instructions are provided on the computer usable medium for determining whether a packaged image is present in a datastream. As is described, *inter alia*, at page 18, line 15 *et seq.* and illustrated at **Figure 5**, reference number 506 instructions are provided on the computer usable medium for, responsive to determining that a packaged image is present in a datastream, extracting the packaged image. As is described, *inter alia*, at page 18, line 17 *et seq.* and illustrated at **Figure 5**, reference number 508 instructions are provided on the computer readable medium for separating the packaged image into an image data structure and a decoding table containing one or more references and one or more corresponding identifiers. As is described, *inter alia*, at page 19, line 18 *et seq.* and illustrated at **Figure 5**, reference number 512 instructions are provided on the computer usable medium for modifying the image data structure to replace any identifiers present in the image data structure with corresponding references.

Finally, the invention recited in Claim 24 provides a computer program product in a computer usable medium for reducing datastream transmission bandwidth. As is described, *inter alia*, at page 7, line 3 *et seq.* and illustrated at **Figure 1**, reference number 114, a computer usable medium is provided. As is described, *inter alia*, at page 15, line 3 *et seq.* and illustrated at **Figure 4**, reference number 402 instructions are provided on instructions on the computer usable medium for examining a datastream for the presence of one or more image data items. As is described, *inter alia*, at page 16, line 8 *et seq.* and illustrated at **Figure 4**, reference number 416

instructions are provided on the computer usable medium for, responsive to the presence of one or more image data items, examining the one or more image data items for the presence of one or more repeated visual data elements. As is described, *inter alia*, at page 15, line 18 *et seq.* and illustrated at Figure 4, reference number 412 instructions are provided on the computer usable medium for, responsive to the presence of one or more repeated visual data elements, recoding the datastream with one or more replacement markers inserted to replace the one or more repeated visual data elements and with a decoding table for translating the one or more replacement markers during decoding.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

I. At paragraph 4 of the Final Action, dated May 20, 2005, Claims 1-2, 4, 6-10, 12 and 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,683,993 to Mead (*Mead*).

II. At paragraph 7 of the Final Action, Claims 3, and 11 are rejected as unpatentable under 35 U.S.C. 103(a) over *Mead* in view of U.S. Patent No. 6,571,016 to Mehrotra *et al.* (*Mehrotra*).

ARGUMENT

I. THE EXAMINER'S REJECTION OF CLAIMS 1-2, 4, 6-10, 12 AND 14-16 AS BEING ANTICIPATED BY U.S. PATENT NO. 6,683,993 TO MEAD (MEAD) SHOULD BE REVERSED.

At paragraph 4 of the present Office Action, the Examiner has rejected Claims 1-2, 4, 6-10, 12 and 14-16 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,683,993 to Mead (*Mead*). That rejection is not well founded and should be reversed.

Anticipation is established only when a single prior art reference discloses, either expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. *RCA Corp*

v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 221 U.S.P.Q. 385 (Fed. Cir. 1984); *W.L. Gore and Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983). Appellants respectfully submit that *Mead* does not disclose all elements of Appellants' invention as recited in exemplary Claim 1, and the Examiner's rejections of Claims 1-2, 4, 6-10, 12 and 14-16 should be reversed.

Appellants' exemplary Claim 1 recites in part:

generating a packaged image, which includes a decoding table comprising said first selected one of said one or more subregions and said corresponding identifier of said first selected one of said one or more subregions in place of said second selected one of said one or more subregions;
inserting said packaged image into said data stream; and
transmitting said modified data stream.

The steps set forth above recite a packaged image that is transmitted in the data stream and contains the decoding table used to decode and encode the identifier that replaces subregions in the datastream. The Examiner cites *Mead* at Col. 3, line 55- Col. 4, line 26 and Col. 4, lines 47-67 as disclosing the "generating" and "transmitting" steps of exemplary Claim 1. The cited text of *Mead* fails to disclose the "generating" and "transmitting" steps set forth above. Instead, the cited text of *Mead* discloses extracting features from a data stream and replacing them with codes by reference to a stored and non-transmitted generic library:

The video segment object encoder 44 further includes a feature extractor 48, coupled to the image segmenter 46. The feature extractor 26 describes the at least one object based upon at least one feature quantity computed therefrom. In general, the feature extractor 48 reduces the representation of an object to a smaller number of components having sufficient information for discrimination therebetween. Various procedures for feature extraction can be employed by the feature extractor 48, as one with ordinary skill in the art of image processing will recognize.

Based upon the at least one feature quantity, each extracted object is compared by a classifier 50 to a set of generic objects, located in a generic library 52, for object recognition. The generic library 52, which

is embodied by an electronic storage device, contains a corresponding representation for each of the generic objects. As an example, for an extracted object comprising a human head, the feature extractor 48 can extract features based upon shape and color for use by the classifier 50 in comparing to known human heads in the generic library 52. Similarly, human facial models, backgrounds and image printing that are similar to clip art can be made available in the library 52. The classifier 50 then produces the symbolic code corresponding to the closest recognized object in the generic library 52 based upon the at least one feature quantity. In the above-described example, the symbolic code for the closest recognized human head would be outputted by the object encoder 22.

In general, the object encoder 22 provides the symbolic code for each recognized object to a multiplexer 54.

An extracted object may not be recognized by any of the generic objects in the generic library 52. In this case, the classifier 50 can add any unrecognized objects to the generic library 52 to be used as references for future similar objects. (*Mead* at Col. 3, line 55- Col. 4, line 26).

and:

The multiplexer 54 multiplexes the symbolic code 58 provided by the view segment object encoder 44, the unrecognized signal portion 60, and the motion compensation signal 62 provided by the motion estimator 56, to produce a serial bit stream representative thereof. As a result, the bit stream 64 contains information related to the generic objects represented in the video image, and motion of the objects. Further, the bit stream 64 contains coding for unrecognized objects. (*Mead* at Col. 4, lines 47- 67).

The Examiner notes at the bottom of page four of the Final Action that "a packaged image data of both unrecognized objects and symbolic codes of recognized objects are formed in multiplexor 54 and variable length coder of Fig. 2." Appellant respectfully submits that, a packaged image, such as the Examiner describes, does not teach "a packaged image, which includes a decoding table comprising said first selected one of said one or more subregions and said corresponding identifier of said first selected one of said one or more subregions in place of said second selected one of said one or more subregions." Specifically, the packaged image of Appellant's claim contains a decoding table, for decoding data transmitted with the table, while

Mead performs decoding through an object library 32, 52 or 84 within object generator 19, 44 or 80. Transmitting a decoding table with the encoded image is not anticipated by transmitting an encoded image for translation with respect to a pre-stored generic library.

Appellants respectfully traverse the Examiner's rejection and submit that "generating a packaged image, which includes a decoding table comprising said first selected one of said one or more subregions and said corresponding identifier of said first selected one of said one or more subregions in place of said second selected one of said one or more subregions" is facially absent from the *Mead* reference.

It is also noteworthy to consider that the *Mead* reference provides no suggestion or motivation to modify the teaching of the *Mead* reference, and thereby obtain the invention recited in exemplary Claim 1. *Mead* focuses on a maximal reduction in transmission bandwidth, which is achieved through the use of a locally stored library that is not transmitted (*Mead*, Column 1, lines 39-50). This concern with maximal reduction in transmission bandwidth would not lead one skilled in the relevant art to modify the teaching of *Mead* to include the transmission of a decoding table.

The foregoing arguments made, with respect to exemplary amended Claims 1, are also made with respect to dependent Claims 4-7 and independent Claim 8. Similarly, the foregoing arguments are made with respect to Claims 9-24, which recite a similar system and computer program product.

A. The examiner's rejection of claim 2 as being anticipated by U.S. patent no. 6,683,993 to Mead (*Mead*) should be reversed.

The Examiner's rejection of Claim 2 under 35 U.S.C. § 102(e) is similarly not well-founded and should be reversed. The Examiner asserts at page six of the Final Action that the step of "separating the packaged image into an image data structure and a decoding table containing one or more references and one or more corresponding identifiers" is disclosed by *Mead* at Column 5, lines 28-58. The cited text discloses:

An embodiment of a video segment decoder 74 in accordance with the present invention is illustrated by the block diagram in FIG. 3. The

decoder provides a system for reconstructing a video image from a bit stream 67 representative of an encoded video signal received from a corresponding encoder 44. The bit stream 67 enters an inverse variable length coder 76, or a like inverse entropy coder, which decompresses the bit stream. The decompressed bit stream is applied to a demultiplexer 78 which extracts a symbolic code, the code for unrecognized data and a motion compensation signal. In a preferred embodiment, the demultiplexer 78 includes a synchronizer which generates an internal clock signal in order to lock onto the bit stream.

The extracted symbolic code, code for the unrecognized signal, and motion compensation signal are applied to an object generator 80. The object generator 80 includes a generic object decoder 82 and a generic object library 84 coupled thereto. The generic object library 84, which contains the waveforms for a set of generic objects and corresponding symbolic identification codes, that correspond to the content of library 52, is preferably embodied by an electronic storage device such as a EEPROM of the receiver 13. The generic object decoder 80 acts to generate a signal representing a generic object in the generic object library 84 that was represented by the extracted symbolic code. The generic object library 84 is updated upon receiving, within the bit stream, new objects which were unrecognized in the segment encoder 44. Hence, new objects added to the generic library 22 are also added to the generic object library 84 on a timely basis. (*Mead* at Col. 5, lines 28-58).

As above, Appellants respectfully traverse the Examiner's assertion and submit that the teaching of "separating the packaged image into an image data structure and a decoding table containing one or more references and one or more corresponding identifiers" is absent from the cited reference, because the reference teaches "representing a generic object in the generic object library 84 that was represented by the extracted symbolic code" based on a stored library, rather than a transmitted decoding table within the packaged image. Accordingly, Appellants respectfully submit that the Examiner's rejection of Claim 2 under 35 U.S.C. § 102(e) should be reversed.

II. THE EXAMINER'S REJECTION OF CLAIMS 3 AND 11 AS UNPATENTABLE UNDER 35 U.S.C. 103(a) OVER MEAD IN VIEW OF U.S. PATENT NO. 6,571,016 TO MEHROTRA ET AL. (MEHROTRA) LACKS MOTIVATION TO COMBINE THE REFERENCES AND SHOULD BE REVERSED.

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At paragraph 7 of the present Office Action, the Examiner has rejected Claims 3 and 11 as unpatentable under 35 U.S.C. 103(a) over *Mead* in view of U.S. Patent No. 6,571,016 to Mehrotra *et al.* (*Mehrotra*). That rejection is not well-founded and should be reversed.

As set forth in MPEP 2143, the first criterion for establishing a *prima facie* case of obviousness is that "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to...combine reference teachings." In evaluating motivation or suggestion to combine reference teachings, "a prior art reference must be considered in its entirety, i.e., as a whole" (emphasis in original). MPEP 2141.02, citing *W.L. Gore and Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir 1983) *cert. denied*, 469 U.S. 851 (1984). In view of the teachings of the references as taken as a whole, there is no objective suggestion or motivation in the cited references (or generally in the art) that would lead a skilled artisan to combine the reference teachings to obtain the present invention. MPEP 2142, citing *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. Appl & Inter. 1986).

At page 8 of the Final Action, the Examiner asserts with respect to combining the references that:

It is desirable to optimize the combination of quality and compression efficiency in image compression. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Mehrotra's teaching to decide the most effective size for each subregion to Mead's image for compression, because the combination improves combination of quality and compression efficiency.

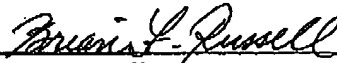
Because the Examiner's combination of references is not supported by citation to any objective teaching in the references or knowledge generally available in the art, Appellant believes that the examiner has failed to establish a *prima facie* case of obviousness. Specifically, the Examiner alleges, "It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Mehrotra's teaching to decide the most effective size for each subregion to Mead's image for compression, because the combination improves combination of quality and compression efficiency." The Examiner provides no citation to where this alleged advantage of efficiency is taught in the references. Similarly, it is axiomatic that the use of the claimed invention as described in the presently pending application "as an instruction manual or

'template' to piece together the teaching of the prior art so that the claim invention is rendered obvious" is in contravention of *In re Fritch*, 23 USPQ2d 1780 (Fed.Cir. 1992). While Appellants agree that a combination of quality and compression efficiency is desirable, the Examiner cites no evidence from the references that such an advantage would result from and motivate the Examiner's combination of references.

CONCLUSION

Appellants have pointed out with specificity the manifest error in the Examiner's rejection, and the claim language which renders the invention patentable over the cited references. Appellants, therefore, respectfully request that the rejection of each claim be reversed.

Respectfully submitted,



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ATTORNEY FOR APPELLANTS

CLAIMS APPENDIX

1. A method for reducing datastream transmission bandwidth requirements, comprising:
in response to determining that an image data structure is present in a datastream,
extracting said image data structure from said datastream;
dividing said image data structure into one or more subregions;
associating a corresponding identifier with a first selected one of said one or more subregions;
in response to determining that said first selected one of said one or more subregions is substantially identical to a second selected one of said one or more subregions,
replacing said second selected one of said one or more subregions with said corresponding identifier of said first selected one of said one or more subregions;
reducing transmission bandwidth requirements by generating a packaged image, which includes a decoding table comprising said first selected one of said one or more subregions and said corresponding identifier of said first selected one of said one or more subregions in place of said second selected one of said one or more subregions;
inserting said packaged image into said data stream; and
transmitting said modified data stream.
2. A method of decoding a packaged image, comprising:
determining whether a packaged image is present in a datastream;
responsive to determining that a packaged image is present in a datastream, extracting the packaged image;
separating the packaged image into an image data structure and a decoding table containing one or more references and one or more corresponding identifiers; and
modifying the image data structure to replace any identifiers present in the image data structure with corresponding references.
3. The method of claim 1, wherein the dividing step further comprises analyzing an image to determine the most effective size of a subregion.

4. The method of claim 1, wherein the reducing transmission bandwidth requirements by generating step further comprises retaining a symbol dictionary of references and identifiers employed in the determining step of processing a previously analyzed image data structure.
5. The method of claim 4, wherein the retaining step further comprises maintaining descriptive statistics on the frequency with which references stored in the symbol dictionary are employed and selectively removing the references when the frequency of their occurrence falls.
6. The method of claim 1, wherein the reducing transmission bandwidth requirements by generating step further comprises storing a preloaded set of references on a sending machine and omitting preloaded references from the decoding table.
7. The method of claim 2, wherein the modifying step further comprises replacing identifiers with references from a preloaded decoding table.
8. A method of reducing datastream transmission bandwidth, comprising:
 - examining a datastream for the presence of one or more image data items;
 - responsive to the presence of one or more image data items, examining the one or more image data items for the presence of one or more repeated visual data elements; and
 - responsive to the presence of one or more repeated visual data elements, recoding the datastream with one or more replacement markers inserted to replace the one or more repeated visual data elements and with a decoding table for translating the one or more replacement markers during decoding.
9. An apparatus for reducing datastream transmission bandwidth requirements, comprising:
 - means for, in response to determining that an image data structure is present in a datastream;
 - means for extracting said image data structure from said datastream;
 - means for dividing said image data structure into one or more subregions;
 - means for associating a corresponding identifier with a first selected one of said one or more subregions;

means, in response to determining that said first selected one of said one or more subregions is substantially identical to a second selected one of said one or more subregions,
means for replacing said second selected one of said one or more subregions with said corresponding identifier of said first selected one of said one or more subregions;
means for reducing transmission bandwidth requirements by generating a packaged image, which includes a decoding table comprising said first selected one of said one or more subregions and said corresponding identifier of said first selected one of said one or more subregions in place of said second selected one of said one or more subregions;
means for inserting said packaged image into said data stream; and
means for transmitting said modified data.

10. An apparatus for decoding a packaged image, comprising:
means for determining whether a packaged image is present in a datastream;
means for, responsive to determining that a packaged image is present in a datastream, extracting the packaged image;
means for separating the packaged image into an image data structure and a decoding table containing one or more references and one or more corresponding identifiers; and
means for modifying the image data structure to replace any identifiers present in the image data structure with corresponding references.

11. The apparatus of claim 9, wherein the dividing means further comprises means for analyzing an image to determine the most effective size of a subregion.

12. The apparatus of claim 9, wherein the reducing transmission bandwidth requirements by generating means further comprises means for retaining a symbol dictionary of references and identifiers employed by the determining means in processing a previously analyzed image data structure.

13. The apparatus of claim 12, wherein the retaining means further comprises means for maintaining descriptive statistics on the frequency with which references stored in the symbol

dictionary are employed and selectively removing the references when the frequency of their occurrence falls.

14. The apparatus of claim 9, wherein the reducing transmission bandwidth requirements by generating means further comprises means for storing a preloaded set of references on a sending machine and omitting preloaded references from the decoding table.

15. The apparatus of claim 10, wherein the modifying means further comprises means for replacing identifiers with references from a preloaded decoding table.

16. An apparatus for reducing datastream transmission bandwidth, comprising:
means for examining a datastream for the presence of one or more image data items;
means for, responsive to the presence of one or more image data items, examining the one or more image data items for the presence of one or more repeated visual data elements; and
means for, responsive to the presence of one or more repeated visual data elements, recoding the datastream with one or more replacement markers inserted to replace the one or more repeated visual data elements and with a decoding table for translating the one or more replacement markers during decoding.

17. A computer program product in a computer usable medium for reducing datastream transmission bandwidth requirements, comprising:
a computer usable medium;
instructions on the computer usable medium for, in response to determining that an image data structure is present in a datastream;
instructions on the computer usable medium for extracting said image data structure from said datastream in response to such determination;
instructions on the computer usable medium for dividing said image data structure into one or more subregions;
instructions on the computer usable medium for associating a corresponding identifier with a first selected one of said one more subregions;

instructions on the computer usable medium for, in response to determining that said first selected one of said one or more subregions is substantially identical to a second selected one of said one or more subregions

instructions on the computer usable medium for replacing said second selected one of said one or more subregions with said corresponding identifier of said first selected one of said one or more subregions;

instructions on the computer usable medium for reducing transmission bandwidth requirements by generating a packaged image, which includes a decoding table comprising said first selected one of said one or more subregions and said corresponding identifier of said first selected one of said one or more subregions in place of said second selected one of said one or more subregions; and

inserting said packaged image into said data stream.

18. A computer program product in a computer usable medium for decoding a packaged image, comprising:

a computer usable medium;

instructions on the computer usable medium for determining whether a packaged image is present in a datastream;

instructions on the computer usable medium for, responsive to determining that a packaged image is present in a datastream, extracting the packaged image;

instructions on the computer usable medium for separating the packaged image into an image data structure and a decoding table containing one or more references and one or more corresponding identifiers; and

instructions on the computer usable medium for modifying the image data structure to replace any identifiers present in the image data structure with corresponding references.

19. The computer program product of claim 17, wherein the instructions for dividing further comprise instructions on the computer usable medium for analyzing an image to determine the most effective size of a subregion.

20. The computer program product of claim 17, wherein the instructions for reducing transmission bandwidth requirements by generating a packaged image further comprise instructions on the computer usable medium for retaining a symbol dictionary of references and identifiers employed in the determining step of processing a previously analyzed image data structure.

21. The computer program product of claim 20, wherein the instructions for retaining further comprise instructions on the computer usable medium for maintaining descriptive statistics on the frequency with which references stored in the symbol dictionary are employed and selectively removing the references when the frequency of their occurrence falls.

22. The computer program product of claim 17, wherein the instructions for reducing transmission bandwidth requirements by generating a packaged image further comprise instructions on the computer usable medium for storing a preloaded set of references on a sending machine and omitting preloaded references from the decoding table.

23. The computer program product of claim 18, wherein the instructions for modifying further comprise instructions on the computer usable medium for replacing identifiers with references from a preloaded decoding table.

24. A computer program product in a computer usable medium for reducing datastream transmission bandwidth, comprising:

a computer usable medium;

instructions on the computer usable medium for examining a datastream for the presence of one or more image data items;

instructions on the computer usable medium for, responsive to the presence of one or more image data items, examining the one or more image data items for the presence of one or more repeated visual data elements; and

instructions on the computer usable medium for responsive to the presence of one or more repeated visual data elements, recoding the datastream with one or more replacement

markers inserted to replace the one or more repeated visual data elements and with a decoding table for translating the one or more replacement markers during decoding.

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RELATED PROCEEDINGS APPENDIX

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